

Listing of Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-36. (Canceled)

37. (Currently amended) A method for the administration of an antisense nucleic acid therapeutic or diagnostic composition comprising:

aerosolizing an antisense nucleic acid therapeutic or diagnostic composition comprising at least one antisense oligonucleotide wherein the sugar moiety of at least one nucleoside unit of said antisense oligonucleotide is not a 2'-deoxyribofuranosyl sugar moiety or at least one internucleotide linkage within said antisense oligonucleotide is not a phosphodiester or a phosphorothioate linkage, wherein the aerosolized composition comprises liquid particles or solid particles, and

introducing the aerosolized antisense nucleic acid therapeutic or diagnostic composition into the lung of a mammal.

38. (Canceled)

39. (Withdrawn) The method of claim 38 wherein said nucleoside unit is a 2'-O-substituted nucleoside unit.

40. (Withdrawn) The method of claim 39 wherein said 2-O-substituent of said 2'-O-substituted nucleoside unit is a 2'-O-alkoxyalkoxy substituent.

41. (Withdrawn) The method of claim 39 wherein said 2-O-substituent of said 2'-O-substituted nucleoside unit is a 2'-O-dialkylaminooxyalkyl substituent.

42. (Original) The method of claim 37, wherein at least one internucleotide linkage within said oligonucleotide is not a phosphodiester or a phosphorothioate linkage.

43. (Withdrawn) The method of claim 42 wherein at least one internucleotide linkage within said oligonucleotide is a 3'-methylenephosphonate, a non-phosphorus containing oligonucleoside linkage, a 2'-5' linkage or is a 3'-deoxy-3'-amino phosphoramidate linkage.

44. (Original) The method of claim 37 wherein said pharmaceutical composition further comprises one or more pharmaceutically acceptable carriers.

45. (Previously presented) The method of claim 37 wherein said antisense nucleic acid therapeutic or diagnostic composition is in aqueous media.

46. (Previously presented) The method of claim 37 wherein said antisense nucleic acid therapeutic or diagnostic composition is in sterilized, pyrogen free water.

47. (Previously presented) The method of claim 37 wherein said antisense nucleic acid therapeutic or diagnostic composition is in saline solution.

48. (Previously presented) The method of claim 37 wherein said antisense nucleic acid therapeutic or diagnostic composition is a powder.

49. (Previously presented) The method of claim 37 wherein said antisense nucleic acid therapeutic or diagnostic composition comprises more than one oligonucleotide.

50. (Canceled)

51. (Previously presented) The method of claim 37 wherein said antisense nucleic acid therapeutic or diagnostic composition is an aerosolized solution that consists essentially of an antisense oligonucleotide in saline solution.

52. (Withdrawn) A method of treating an animal having or suspected of having a disease or disorder that is treatable with an antisense nucleic acid composition comprising:

administering a therapeutically effective amount of an aerosolized antisense nucleic acid composition to the lung of the animal;
wherein the aerosolized antisense nucleic acid composition comprises at least one antisense oligonucleotide;

wherein the sugar moiety of at least one nucleoside unit of said antisense oligonucleotide is not a 2'-deoxyribofuranosyl sugar moiety or at least one internucleotide linkage within said antisense oligonucleotide is not a phosphodiester or a phosphorothioate linkage.

53. (Withdrawn) A method of investigating the role of a gene or gene product in an animal other than a human comprising:

administering a therapeutically effective amount of an aerosolized antisense nucleic acid composition to the lung of the animal;
wherein the aerosolized antisense nucleic acid composition comprises at least one antisense oligonucleotide;

wherein the sugar moiety of at least one nucleoside unit of said antisense oligonucleotide is not a 2'-deoxyribofuranosyl sugar moiety or at least one internucleotide linkage within said antisense oligonucleotide is not a phosphodiester or a phosphorothioate linkage.

54. (Canceled)

55. (Currently amended) The method of claim 37 54 wherein said oligonucleotide is delivered within cells of said lung.

56. (Currently amended) The method of claim 55 wherein said animal is known or suspected to suffer from a disease or disorder which may be treated or diagnosed by said antisense nucleic acid.

57. (Original) The method of claim 56 wherein said disease or disorder is asthma, a cancer of the lung, pulmonary fibrosis, rhinovirus, tuberculosis, bronchitis, or pneumonia.

58. (Previously presented) The method of claim 37 wherein the antisense nucleic acid therapeutic composition is an aerosolized solution that consists essentially of an antisense oligonucleotide in buffer solution.

59. (Withdrawn) A method of modulating the expression of a gene in an animal comprising administering to said animal an antisense nucleic acid composition comprising at least one antisense oligonucleotide wherein the sugar moiety of at least nucleoside unit of said antisense oligonucleotide is not a 2'-deoxyribofuranosyl sugar moiety or at least one internucleotide linkage within said antisense oligonucleotide is not a phosphodiester or a phosphorothioate linkage.

60. (Canceled)

61. (Currently amended) A medical device for pulmonary delivery of an aerosol comprising an antisense nucleic acid composition for pulmonary delivery of an antisense oligonucleotide comprising at least one antisense oligonucleotide wherein the sugar moiety of at least nucleoside unit of said antisense oligonucleotide is not a 2'-deoxyribofuranosyl sugar moiety or at least one internucleotide linkage within said antisense oligonucleotide is not a phosphodiester or a phosphorothioate linkage, wherein the aerosolized composition comprises liquid particles or solid particles.

62. (Canceled)

63. (Previously presented) A method according to claim 37, wherein said oligonucleotide is selected from the group consisting of SEQ. ID. NO: 1, SEQ. ID. NO: 2, SEQ. ID. NO: 3, SEQ. ID. NO: 4, SEQ. ID. NO: 5, SEQ. ID. NO: 6, SEQ. ID. NO: 7, SEQ. ID. NO: 8, SEQ. ID. NO: 9, SEQ. ID. NO: 10.

64. (Withdrawn) A method of treating an animal having or suspected of having a disease or disorder that is treatable with one or more antisense oligonucleotides comprising:

administering a therapeutically effective amount of one or more aerosolized oligonucleotides to the lung of the animal,

wherein one or more of the aerosolized is an antisense oligonucleotide;

wherein the sugar moiety of at least one nucleoside unit of said antisense oligonucleotide is not a 2'-deoxyribofuranosyl sugar moiety or at least one internucleotide linkage within said antisense oligonucleotide is not a phosphodiester or a phosphorothioate linkage;

wherein said antisense oligonucleotide is not directed to an A1 or A3 adenosine receptor and is not contained in an expression vector.

65. (New) The method of claim 37 wherein the composition further comprises a penetration enhancer.